

REMARKS

Request for Continued Examination:

An RCE is submitted herewith.

Regarding the Claims in General:

Claims 1-16 are now pending. Claim 1 has been amended to more clearly highlight a distinguishing feature of the invention, claim 7 has been amended to conform to the change in claim 1, and claim 14, previously dependent on claims 1 and 7, has been rewritten in independent form. Claims 15 and 16 have been added to provide applicant with additional protection to which he appears to be entitled in light of the known prior art.

Regarding The Allowable Subject Matter

Applicant notes with appreciation the indication that claim 14 would be allowed if rewritten in independent form incorporating the limitations of its parent claims. Claim 14 has accordingly been rewritten in independent form including the limitations of claims 1 and 7.

Regarding the Prior Art Rejection:

In the outstanding Office Action, claims 1-13 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Jonnson WO 02/04835 (Jonnson) in view of Braschler et al. U. S. Patent 3,860,097 (Braschler). Reconsideration and withdrawal of this rejection are respectfully requested in light of the amendments to claim 1 made herein.

Jonnson, like the present invention, is concerned with promoting a high volume of oil flow through a hydrodynamic brake such as a retarder to facilitate efficient cooling of the oil and of the retarder itself. To this end, Jonnson teaches providing a single piping circuit which connects the outlet from the toroidal chamber of the retarder to the inlet of the heat exchanger, and the outlet of the heat exchanger back to the toroidal chamber, and a strategically placed series of inlet and outlet holes for connecting the toroidal chamber into the piping circuit. Specifically, the inlet openings are provided through the stator at areas of inherently low pressure, and the outlet holes are provided at areas of inherently high pressure. As a consequence, the resistance to the inflow of the oil is

minimized due to the low inlet pressure, and conversely, the oil is forced out of the toroidal space due to the high outlet pressure.

However, as explained in the specification, the arrangement of Jonnson requires that the pump which supplies oil to the retarder from the oil sump during operation must be designed to provide the high pressures existing in the main circulation piping. The piping for the pump must likewise be designed to withstand the high pressure at the pump to avoid possible leakage.

Provision of two separate fluid inlet paths for the toroidal space, one for re-circulation through the oil cooler, and the second for connection to the oil sump, results in a significant improvement over the design disclosed in Jonnson which lacks this feature.

Specifically, the need for a high pressure pump and piping connecting the oil sump and the toroidal chamber are eliminated entirely by the use of the second independent piping circuit and series of inlets. There still needs to be a pump, to be sure, but the demands on it are significantly reduced because the pressure differential between the sump, which can be at atmospheric pressure, and the region of the second inlets is small. And with the reduced pressure requirement, the chance of leakage is reduced so the construction of the second feed circuit can be simplified and the system can be made less costly.

Claim 1 has been amended to more clearly highlight these benefits, and how these benefits are achieved. Thus, claim 1 now recites, in relevant part:

... an annular stator shell. . .

... an annular rotor shell . . .

the annular stator and rotor shells being so shaped and arranged that they form a toroidal space . . . the space having a first and a second inlet and having an outlet;

a storage space for a medium which is intended to be supplied to the toroidal space;

a first pipe circuit coupled between the outlet from the toroidal space and the first inlet to the toroidal space;

a second pipe circuit coupled between the storage space and the second inlet; and

a driver for the medium in the second pipe circuit,

wherein a fluid pressure in the second pipe circuit provided by the driver during operation of the brake is always substantially lower than a fluid pressure in the first pipe circuit.

The Examiner has admitted that Jonnson does not disclose, teach, or suggest a separate piping circuit connecting the oil sump to a separate inlet for the toroidal chamber, and has attempted to remedy this deficiency by combining it with Braschler. However, with due respect, the Examiner's stated motivation for combining the teachings of the references is not valid, and in any case, Braschler does not disclose, teach or suggest a construction for a hydrodynamic brake having a single braking cavity with a separate second piping circuit for the oil sump, and a separate inlet to the toroidal chamber for the second piping circuit.

The Examiner essentially contends that Braschler teaches two inlets to a toroidal brake chamber of the type shown in WO'835, and that this is sufficient motivation to provide a second inlet in WO'835 because it would amount only to a "mere duplication of essential working parts". This is certainly not a mere duplication of essential parts.

Braschler's main concern is with how to stack a number of stator/rotors in a hydraulic brake and how to control oil flow resistance by machining of the rotor and stator instead of adjusting the gap between the stator and rotor during assembly. While Braschler shows, e.g. in Fig. 2, inlet holes 65 drilled in each of the stator blades, these are the only inlets and they all receive oil from the same supply behind the stator. There is no disclosure, teaching or suggestion of a first piping circuit for circulation of oil through an oil cooler and second piping circuit with its own separate inlet for connecting the toroidal chamber to an oil sump.

Interestingly, the Examiner states that Braschler is being relied on "as teaching of merely a second inlet." From this, it is understood that the Examiner is saying that Braschler teaches two separate inlets 65. However, there is not one inlet 65 for the piping circuit through the oil cooler and a second inlet (e.g., an inlet 65') for the piping circuit from the oil sump. Rather, inlets 65 all provide fluid to the pockets between the adjacent stator vanes 56 from a common source (see Col. 3, lines 47-62) so that the incoming fluid interacts with all the rotor vanes simultaneously as the rotor turns.

That kind of arrangement for fluid delivery to the toroidal chamber, and a single piping circuit associated with all the pocket inlets is entirely conventional, and is shown in Jonnson. Braschler isn't even needed to demonstrate this.

What isn't conventional, and isn't obvious, is to provide a second inlet for each pocket associated with a separate second piping circuit connected to an oil sump. Claim 1 as amended clearly states this distinguishing feature.

And of course, with neither reference disclosing, teaching, or suggesting the second piping circuit and inlet, there can be no disclosure, teaching or suggestion in either reference for the pressure in the second piping circuit to be lower during operation of the brake than the pressure in the first piping circuit.

The Examiner sees the provision of the second oil supply circuit as "a redundancy of known arrangements", and she has cited *St. Regis Paper Co. v. Bemis Co.*, 193 U.S.P.Q. 8 purportedly to show that "it has been held that mere duplication of essential working parts of a device involves only routine skill in the art."

However, God (or the Devil, depending on one's view of life) is in the details. *St. Regis* is about the idea that there must be a synergistic result from a combination of known elements for the combination to be patentable. The patented product (a paper bag) differed from the prior art only in that it was formed of multiple layers. Moreover, use of multiple layers to achieve the effect of many bags within one, was also known in the bag industry for many years.

Referring to the Supreme Court's decision in *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 282, 189 USPQ 449, 452-453 (1976) (unless the combination is "synergistic, that is, 'result[ing] in an effect greater than the sum of the several effects taken separately,'" it cannot be patented), the court observed that the patent in suit could only be valid:

... if the fusion of the old elements that comprised the [reference] patent and the old element of multiple layering created a synergistic combination.

The court found that the required synergism did not exist. It observed:

... It is difficult to conceive of a more obvious method of strengthening a certain type of bag than putting one bag inside of another.

Thus, it wasn't the duplication that concerned the court, but the fact that the duplication produced no unobvious result. In fact, nowhere in the decision does it say that "mere duplication of essential working parts of a device involves only routine skill in the art."

There is, of course, explicit authority for the proposition that the mere duplication of parts has no patentable significance. See, for example, *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA

1960) cited in Section 2144.04 of the M.P.E.P. Again, however, one ignores the details at one's peril. The actual rule of *Harza*, and as stated in the M.P.E.P., is that duplication of parts has no patentable significance *unless a new and unexpected result is produced*.

In the present context, it might be reasonable to characterize a separate piping circuit connecting the oil cooler and the toroidal chamber as a mere duplication of parts. However, that is not what is being claimed. Providing a second piping circuit between point A (the sump) and point B (the chamber inlet) is not a mere duplication of a first piping circuit from point C (the chamber outlet) to point B. Moreover, there is a new and unexpected result. With the second piping circuit, both the pump and the adjacent piping can be designed for lighter duty.

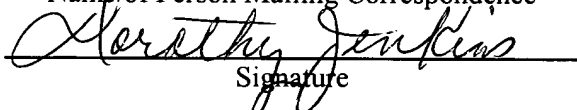
In view of the foregoing, favorable reconsideration and allowance of this application are respectfully solicited.

EXPRESS MAIL CERTIFICATE

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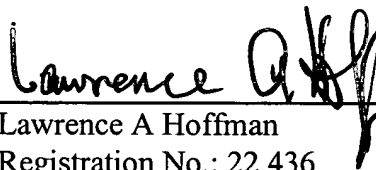
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